

**ABSTRACT**

The invention relates to a process for synthesizing nanorods of a carbide of one metal M1 on a substrate, which comprises:

- 5           a) the deposition, on the substrate, of a layer of nanocrystals of oxide of the metal M1 and nanocrystals of oxide of at least one metal M2 different from metal M1, the M1 metal oxide nanocrystals being dispersed within this layer;
- 10           b) the reduction of the M1 and M2 metal oxide nanocrystals into corresponding metal nanocrystals; and  
            c) the selective growth of the M1 metal nanocrystals.
- 15   The invention also relates to a process for growing nanorods of a carbide of one metal M1 on a substrate from nanocrystals of this metal, to the substrates thus obtained and to their applications: fabrication of microsystems provided with chemical or biological
- 20   functionalities, in particular the fabrication of biosensors; electron emission sources, for example for flat television or computer screens; etc.